

INDIANA DEPARTMENT OF TRANSPORTATION

INTER-DEPARTMENT COMMUNICATION
Standards Section -- Room N642

August 1, 1998

DESIGN MEMORANDUM No. 98-06
TECHNICAL ADVISORY

TO: All Design, Operations, and District Personnel, and Consultants

FROM: /s/ Richard VanCleave
Richard VanCleave
Design Policy Engineer, Technical Services Division

SUBJECT: Scour Protection at Three-Sided Precast Concrete Structure

EFFECTIVE: January 20, 1999, Letting

Scour protection for a three-sided precast concrete structure carrying a waterway shall be provided by means of riprap or a concrete base slab.

RIPRAP. The table shown below must be used to determine the riprap type required for three-sided structures, bridges, or channels. The table is intended for use with the new riprap specifications now included in the Supplemental Specifications effective September 1, 1998.

| MIN. AVG. STREAM VELOCITY m/s (fps) | MAX. AVG. STREAM VELOCITY m/s (fps) | RIPRAP AT STR. | RIPRAP AT OUTSIDE CURVED BEND | BASE SLAB CONCRETE AT STR. |
|--|--|----------------------|-------------------------------------|----------------------------------|
| ≤ 2 (≤ 6.5) | ----- | Revet. | Class 1 | Class B |
| > 2 (> 6.5) | < 3 (< 10) | Class 1 | Class 2 | Class B |
| ----- | ≥ 3 (≥ 10) | Class 2 | Class 2 | Class B |

Note: The maximum average stream velocity at the structure may occur at a lesser event than the design storm if roadway overtopping is present during the design storm.

Once the riprap type is determined, the riprap quantities must be determined and then shown on the plans. New standard drawings 714-CCSP-01, and either -02 or -03, must be called for as required standard drawings for the contract.

BASE SLAB. The quantity of class B concrete must be shown on the plans. New standard drawings 714-CCSP-04 and -05 must be called for as required standard drawings for the contract.

SPECIFICATIONS REQUIREMENTS. Recurring special provision 714-R-282 has been revised to show the material, construction, method of measurement, and basis of payment requirements which have been generated by this concept.

AFFECTS ON ENVIRONMENTAL PERMITS. If the INDR Floodway Construction, IDEM Water Quality 401, or U.S. Army Corps of Engineers 404 permit application information has been given to the Design Division's Environmental Permits Coordinator, the designer must provide the additional quantities of riprap or concrete to the Coordinator. The Coordinator will incorporate the information into the permit application. If one or more of these permits has been granted, the designer must still provide the quantities information to the Coordinator. The Coordinator will then apply for a permit amendment.

Questions regarding this requirement may be asked of the Hydraulics Engineer, Merril Dougherty, at 317-232-6776.

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